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Chapter 17

Public Services and Utilities

17.1 Introduction

This chapter addresses public services and utilities related to the proposed Brightwater System. Please note that all references and figures cited in this chapter can be found at the end of the chapter. “Public services” refers to fire and emergency response, law enforcement, schools, and solid waste. “Utilities” refer to water, wastewater, electricity, natural gas and telecommunications. The use of energy resources during the construction and operation of Brightwater is discussed in Chapter 8.

17.1.1 Overview of the Chapter

Public services and utilities discussed in this chapter are based on each of the proposed Brightwater System alternatives consisting of the treatment plant site, conveyance corridor (including portal sites), and outfall. Public service and utility providers at the treatment plant sites vary, as the sites are served by different jurisdictions. Similarly, public service and utility providers along each of the three conveyance corridors differ; however, some of the service and utility providers overlap in certain areas of the corridors. Outfall zones are located in separate areas along the Puget Sound shoreline; therefore, different public services and utilities serve them.

The chapter organization for the Final EIS has been modified to discuss the affected environment, impacts and mitigation by system (i.e., Route 9 Systems and Unocal System). The affected environment, impacts, and mitigation common to all systems are discussed at the beginning of each section, followed by discussions of each system.

Comments received on the Draft EIS relating to public services and utilities primarily focused on the impact of construction activities and operation of the treatment facility on local emergency service providers. Specifically, public comments requested information relating to the ability of fire, police, and emergency service providers, with current staff and equipment, to effectively respond to an emergency situation that could arise during construction and operation of the Brightwater Regional Wastewater Treatment System. In addition, Draft EIS comments expressed concern about the impact of congestion due to construction vehicles on emergency vehicle access. Finally, numerous comments on the Draft EIS requested that an emergency spill response plan and/or a hazardous materials protection plan be prepared in response to construction and operation of the Brightwater System.

Since the Draft EIS was published, King County has conducted further analysis to determine the effects that construction and operation of the Brightwater System would have on public services and utilities. Additional information on project design elements and mitigation relevant to public services and utilities is included in Chapter 3 and Brightwater Final EIS technical appendices, including Appendices 6-B, Geology and Groundwater; 6-D, Permanent Stormwater Management at the Treatment Plant Sites; and 6-F, Groundwater and Stormwater Management at the Candidate Portal Sites.

17.2 Affected Environment

17.2.1 Affected Environment Common to All Systems

Several public services and utilities share service areas and rights-of-way in the project area for components of the Brightwater System. Public services evaluated in this section include fire protection, emergency medical services, law enforcement, schools, and solid waste (Figures 17-1 and 17-2). Public utilities include water, wastewater, storm sewer, electricity, natural gas, and communications. Figure 17-3 provides the location of wastewater districts along the Unocal and Route 9 corridors.

17.2.1.1 Regulatory Environment

Municipalities and utility purveyors manage public services and utilities in the Brightwater project area. The regulatory framework for providing public services and utilities is established in comprehensive plans, municipal codes, and development codes of local governments and facility plans of independent purveyors. Chapter 6 discusses stormwater regulations and Chapter 9 discusses the Uniform Fire Code.

The capital facility and utility elements of comprehensive plans assess existing conditions, identify needs for facilities and service, and establish standards and implementation strategies to meet those needs. Utility and public services' standards are designed to be consistent with Washington State's Growth Management Act (GMA). Specifically, GMA regulates the expansion of utility service so as not to fall outside a municipality's Urban Growth Area (UGA). Similarly, facility plans of utility purveyors assess existing and future facility and service needs, using forecast population growth from cities and counties (for unincorporated UGAs). GMA requires that new capacity be provided before or concurrent with proposed new development.

17.2.1.2 Treatment Plant Sites

Most of the distribution components of utility systems on both treatment plant sites are located offsite within road and street rights-of-way. The exception is the Cross Valley Water District's water and sewer lines, which cross east-west through the Route 9 site, just north of the StockPot Culinary Campus.

Snohomish County Public Utility District (PUD) No. 1 provides electrical service and Puget Sound Energy (PSE) provides natural gas service to both the Route 9 and Unocal sites. Electrical and natural gas purveyors are discussed in Chapter 8.

T-Mobile/Verizon provides telecommunication service, including land line telephone service, in the vicinity of the treatment plant sites. The T-Mobile/Verizon service areas in Washington include Bothell, Duvall, Juanita, Kenmore, Kirkland, Redmond, Richmond Beach, south Snohomish County, and Woodinville.

17.2.1.3 Conveyance Corridors

The conveyance corridors traverse several public service and utility provider areas. Service area boundaries and locations are shown in Figures 17-1, 17-2, and 17-3. Thirty-seven agencies were identified as having utilities (e.g., water, wastewater, storm sewer, electricity, natural gas, and communications) within the conveyance corridors. Public services and utilities are discussed together in this section because the provider areas overlap.

As discussed in Chapter 3, primary and secondary portal siting areas have been identified along each of the corridors. Secondary portals are not expected to be used based on current information and engineering; however, it may prove necessary to use one or more secondary portals along the selected conveyance corridor. A decision on the need for secondary portals will not be made until the final design stage.

Public Services

Table 17-1 lists emergency service providers along the three conveyance corridors and identifies which service provider would serve each portal. Areas designated with an "N/A" indicate that the public service is not expected to serve any of the conveyance corridors because no primary or secondary portals or other surface facilities would be located in that provider's jurisdiction.

Some of the portals in Table 17-1 are shown as being under the jurisdiction of separate public service providers for the same services. This is because some portals fall within more than one local jurisdiction.

**Table 17-1. Public Services Serving Primary and Secondary Portals
along the Conveyance Corridors**

Jurisdiction	Fire Emergency	Law Enforcement	School District	Route 9–195th Street Corridor	Route 9–228th Street Corridor	Unocal Corridor
Snohomish County – near Route 9 Site	Snohomish Fire District No. 7	Snohomish County Sheriff's Office, South Precinct	Northshore School District	N/A	N/A	N/A
Woodinville	Woodinville Fire and Life Safety District	Woodinville Police Department	Northshore School District	N/A	N/A	N/A
Bothell	Bothell Fire and EMS Division	Bothell Police Department	Northshore School District	Primary Portal 41	Primary Portal 41	Primary Portal 14 Secondary Portal 13
Snohomish County - near Bothell	Snohomish Fire District Nos. 10 and 1	Snohomish County Sheriff's Office, South Precinct	Northshore School District and Edmonds School District	N/A	Primary Portal 33	N/A
Brier	Mountlake Terrace Fire Department	Brier Police Department	Edmonds School District	N/A	Primary Portal 33 Secondary Portal 30	N/A
Kenmore	King County Fire District 16	King County Sheriff's North Precinct 2	Northshore School District	Primary Portals 11 and 44 Secondary Portal 45	Primary Portals 11 and 44	Primary Portal 11 Secondary Portal 12
Lake Forest Park	King County Fire District 16	Lake Forest Park Police Department	Shoreline School District	Secondary Portal 7	N/A	Primary Portal 7 Secondary Portal 10
Mountlake Terrace	Mountlake Terrace Fire Department	Mountlake Terrace Police Department	Edmonds School District	Primary Portal 5 Secondary Portal 27	Primary Portal 26	Secondary Portal 5
Shoreline	Shoreline Fire Department	Shoreline Police Department	Shoreline School District	Secondary Portal 23	Secondary Portal 22	Primary Portal 7 Secondary Portal 5
Snohomish County – near Edmonds	Snohomish Fire District No. 1	Edmonds Police Department	Edmonds School District	N/A	N/A	Primary Portal 3
Edmonds	Edmonds Fire Department	Edmonds Police Department	Edmonds School District	Secondary Portal 23	Primary Portal 26 Secondary Portals 22 and 24	Primary Portal 3
Woodway	Edmonds Fire Department	Town of Woodway and City of Edmonds	Edmonds School District	Primary Portal 19	Primary Portal 19	N/A

N/A – public service is not expected to serve the conveyance corridor

Average response times to emergencies by both law enforcement and fire services along the conveyance corridors are listed in Table 17-2. Response times for emergency services are subject to change and depend on external factors, which may include traffic congestion and the type of emergency. Figure 17-1 depicts local law enforcement and fire emergency service providers. During certain emergencies, providers from other districts often assist.

Utilities

Thirty-seven utility agencies were identified as having utilities within the conveyance corridors. Electrical service in the corridors is provided by Seattle City Light, PSE, and Snohomish County PUD No. 1, with gas service provided by PSE (see Chapter 8 for further discussion).

Potable water purveyors and wastewater service providers along the Unocal and Route 9 corridors are depicted in Figure 17-3.

Potable water and sewer service is provided by Seattle Public Utilities (SPU); Cities of Lake Forest Park, Edmonds, Mountlake Terrace, Brier, and Bothell; Northshore Utility District; Woodinville Water District; Cross Valley Water District; Alderwood Water and Wastewater District; Ronald Wastewater District; and Olympic View Water and Sewer District. Both the Route 9 and Unocal influent corridors would cross the SPU Tolt Pipeline, which conveys potable water.

Telecommunication, natural gas, and electricity service providers along the proposed corridors are the same as discussed for the treatment plant sites.

17.2.1.4 Outfall Zones

Identification of utility locations was not conducted for the outfall zones. Snohomish County PUD No. 1 operates and maintains a network of underground and overhead transmission and distribution facilities in the outfall vicinity. Overhead electrical transmission lines are located parallel to and within the Burlington Northern-Santa Fe (BNSF) Railroad right-of-way at both Zones 6 and 7S. Fiber optic or other utility lines could also be present within the vicinity of the outfall zones. Water, sewer, natural gas, or electric utility lines are not expected to be present in the immediate shoreline area.

Offshore segments of all outfall zones would cross known utility cable areas established by the U.S. Army Corps of Engineers (COE). The COE is responsible for permitting any construction within that area and maintaining records of in-water utility cables.

Table 17-2. Average Response Times for Local Law Enforcement and Fire Emergency Service Providers along the Conveyance Corridors (2001-02)

Jurisdiction	Public Service	Average Response Time
Woodinville	Woodinville Fire and Life Safety District	6.5 to 8 minutes (depending on the emergency)
	Woodinville Police Department	3 minutes
Bothell	Bothell Fire and EMS Division	5 minutes
	Bothell Police Department	4 minutes for emergencies; 10 minutes for non-emergencies
Kenmore	Northshore Fire District / King County District No. 16	4 minutes
	King County Sheriff's North Precinct 2	6.5 to 25 minutes (depending on the emergency) ^a
Unincorporated King County	Northshore Fire District / King County District No. 16	4 minutes
	King County Sheriff's North Precinct 2	6.5 to 25 minutes (depending on the emergency) ^a
Lake Forest Park	Northshore Fire District / King County District No. 16	4 minutes
	Lake Forest Park Police Department	7-8 minutes
Mountlake Terrace	Snohomish County Fire District No. 1	4.5 minutes
	Mountlake Terrace Police Department	3 to 10 minutes (depending on the emergency)
Shoreline	Shoreline Fire Department	5 minutes
	Shoreline Police Department	6.5 to 10 minutes (depending on the emergency)
Unincorporated Snohomish County	Snohomish County Fire District No. 7	7 minutes
	Snohomish County Sheriff's Office, South Precinct	4.5 minutes
Brier	Brier Police Department	3 minutes
	Mountlake Terrace Fire Department	4.5 minutes
Woodway	Edmonds Fire Department	5 minutes
	Woodway Police Department	less than 3 minutes
	Snohomish County Sheriff's Office, South Precinct (Pt. Wells)	4.5 minutes
Edmonds	Edmonds Fire Department	5 minutes
	Edmonds Police Department	3 minutes emergency calls to 8 minutes non-emergency

^a Hilmar (personal communication, 2002)

17.2.2 Affected Environment: Route 9 System

17.2.2.1 Treatment Plant: Route 9

Fire Protection and Emergency Medical

The Route 9 site is located in unincorporated Snohomish County and receives public services and utilities from a variety of providers. Snohomish County Fire District No. 7, which is responsible for providing emergency services in the vicinity of the Route 9 site, includes several stations that would potentially respond to an emergency at the site.

The two facilities nearest to the Route 9 site are Fire Station 73 (Bear Creek Station), located approximately 3 miles west of the Route 9 site, and Station 74 (Maltby Station), located approximately 3 miles northeast (Figure 17-1). The Bear Creek Station is staffed by voluntary firefighters and is not staffed during the day. Emergency personnel from Station 71, the Clearview Station, would likely be the first to respond to an emergency at the Route 9 site due to the road network and staff numbers at surrounding fire stations. Station 71 is located at the intersection of 180th Street SE and SR 9, about 3 miles from the Route 9 site. Stations 72 (Fernwood) and 77 (Gold Creek) would also likely respond to an emergency at the Route 9 site. Station 72 is about 4.5 miles and Station 77 is about 6.5 miles northwest of the Route 9 site. Response would depend on the availability of emergency personnel. Response times are approximately 6 minutes for medical aid (dispatched from the Clearview Station) and approximately 7 minutes for the fire department (Evans, personal communication, 2002).

In addition to the Snohomish County fire stations previously discussed, Fire District No. 7 utilizes mutual aid; therefore, personnel from Station 31, the location of the Woodinville Fire and Life Safety District headquarters approximately 2 miles south of the Route 9 site, and from King County Fire District No. 36 would likely be the third or fourth to respond to an emergency at the Route 9 site (Snohomish County Fire District No. 7, 2003).

Law Enforcement

The South Precinct of the Snohomish County Sheriff's Office provides law enforcement within the vicinity of the Route 9 site. The South Precinct's base station is located in Mill Creek, approximately 8 miles northwest of the Route 9 site. Seventy-one South Precinct staff operate out of the Mill Creek station, including 55 primary staff that handle incoming calls and dispatch (Snohomish County, 2000).

Schools

Two Northshore School District schools fall within 1.5 miles of the Route 9 site. Kokanee Elementary School, located in unincorporated Snohomish County, is approximately 0.75 miles southwest of the site, and Woodinville High School is approximately 1.5 miles southwest (Figure 17-2).

Solid Waste Services

There are no solid waste facilities located on or close to the Route 9 site. The transfer station located nearest to the Route 9 site is the Snohomish County Southwest Recycling and Transfer Station in Mountlake Terrace. The transfer station is located approximately 8 miles west of the Route 9 site. The First Northeast Transfer Station, located approximately 10 miles southwest of the Route 9 site in the City of Shoreline, is the nearest solid waste facility in King County.

A new 80,000-square-foot recycling plant designed to handle construction-related waste located near SR-522 and Northeast 190th Street in Woodinville opened in August 2003. The new plant, called the Cascade Recycling Center, is the largest of its kind on the West Coast and the second largest in the United States (Seattle Times, 2003).

Water

The Cross Valley Water District, which draws potable water from a sole source aquifer, currently provides drinking water to over 5,400 connections in unincorporated Snohomish County. The district is supplied by 10 groundwater wells drawing from the Cross Valley sole source aquifer, and from surface water purchased from the City of Everett.

The district provides water service to most properties on the Route 9 site (Snohomish County, 2001). Properties north of the StockPot Culinary Campus, outside of the Urban Growth Area (UGA), draw water from individual wells that are connected to the Cross Valley sole source aquifer. Water demand from customers at the Route 9 site from July 1, 2001 to June 30, 2002 was 29 gallons per minute (gpm) (0.065 cfs). The flow capacity at the Route 9 site is approximately 40 gpm. Based on the improvement projects listed in the 1999 *Cross Valley Water District's Water Comprehensive Plan*, the district does not anticipate any major water improvement projects near the Route 9 site (Hajek, personal communication, July 3, and August 26, 2002). See Chapter 6 for a complete description of the Cross Valley sole source aquifer.

Wastewater

The Cross Valley Water District also provides wastewater collection service to an estimated 8,900 customers including the Route 9 site within the UGA. Properties to the

north of the StockPot Culinary Campus have individual septic systems (Hajek, personal communication, July 3, and August 26, 2002). The Cross Valley Water District jointly owns, along with the Alderwood Water and Wastewater District, a 30-inch sanitary sewer trunk line that extends along the eastern boundary of SR-522 from the King/Snohomish County line north to a crossing of SR-522 at 63rd Avenue SE, to 223rd Place SE, and east in 233rd Place SE to SR-9. The pipe changes to a 15-inch pipe across SR-9 to the Route 9 site, where the pipe branches north and south. All wastewater collected by the Cross Valley Water District is conveyed to King County's existing regional conveyance system for treatment at either the West Point or South Treatment Plants.

Storm Sewer

Stormwater improvements associated with the Route 9 site are managed by Snohomish County. Stormwater runoff from the Route 9 site is currently discharged to Little Bear Creek with little or no stormwater treatment prior to discharge. Refer to Chapter 6 for a discussion of the stormwater system at the site.

17.2.2.2 Conveyance: Route 9

Affected Environment Common to Both Route 9 Corridors

Public services along the Route 9 corridors were inventoried by reviewing city comprehensive plans, capital facilities plans, and public services' Web pages. The Cities of Woodinville, Bothell, Kenmore, Lake Forest Park, Shoreline, Mountlake Terrace, and Edmonds; the Town of Woodway; and unincorporated King and Snohomish Counties fall along the Route 9–195th Street corridor.

Jurisdictions along the Route 9–228th Street corridor include the Cities of Woodinville, Bothell, Kenmore, Brier, Mountlake Terrace, Edmonds, and Shoreline; the Town of Woodway; and unincorporated King and Snohomish Counties.

Police, fire, and school districts along the Route 9 corridors are listed in Table 17-1. Service area boundaries and facility locations are shown in Figures 17-1 through 17-3.

Fire Protection and Emergency Medical

The Route 9 corridors pass through numerous fire protection and emergency medical service areas. A mutual aid agreement ensures that coordinating fire departments from multiple jurisdictions within the vicinity of an emergency respond to a call. This measure ensures that nearby fire and emergency departments outside the jurisdiction can assist if personnel from the responsible department are responding to another emergency or if more personnel are required. Service areas and station locations are shown in Figure 17-1. Average response times for emergency services are shown in Table 17-2.

Fire and emergency medical services for the influent portion of the Route 9 corridors are provided by the Northshore Fire District/King County Fire District No. 16, Bothell Fire and Emergency Medical Services (EMS) Division, Woodinville Fire and Safety District, and Snohomish County Fire District No. 7.

The Bothell Fire Department's service area extends throughout the Bothell city limits and into areas of unincorporated Snohomish County north and northwest of the city. The department provides services to Snohomish County Fire District No. 10 under a contractual services agreement. The response time to emergencies varies depending on the location and type of emergency reported. The desired response time to emergencies is 5 minutes or less for at least 50 percent of emergency calls. Three fire stations serve the Bothell Fire Department; two of the fire stations are located in unincorporated Snohomish County. Typically, the Bothell Fire Department coordinates with the Bothell Community Development or Public Works Departments regarding potential roadway detours or closures (Wick, personal communication, 2002).

The Northshore Fire District (also known as King County Fire District No. 16) provides emergency services to the Cities of Lake Forest Park and Kenmore and a small portion of unincorporated King County between Kenmore and Bothell. Response times are generally around 4 minutes, regardless of the type of emergency.

The City of Shoreline Fire Department is responsible for providing emergency services within the city and portions of unincorporated King County located in the city's UGA. Service to King County is provided through an interlocal agreement. The Shoreline Fire Department response time goal is 5 minutes or less for 90 percent of calls received.

Snohomish County Fire District No. 1 currently has fire jurisdiction over the cities of Mountlake Terrace and Brier. Although Mountlake Terrace has its own fire department, employees are under the Snohomish County Fire District No. 1 jurisdiction. Fire District No. 1 is attempting to merge with Mountlake Terrace and Brier so that both municipalities will contract fire and emergency protection under Fire District No. 1. Beginning April 2001, Snohomish County Fire District No. 1 entered into a 5-year interim agreement; the fire district expects to merge with Mountlake Terrace and Brier within the next 5 years (Reading, personal communication, 2002). The average response time to emergencies for Snohomish County Fire District No. 1 is 4.5 minutes.

The Town of Woodway contracts with the City of Edmonds Fire Department and is included within the Edmonds' service area. The Edmonds Fire Department also protects the small area of unincorporated Snohomish County located in the center of Edmonds, near Highway 99.

Law Enforcement

Local law enforcement agencies that fall within the Route 9 corridors from east to west include the Snohomish County Sheriff's Office South Precinct, Woodinville Police Department, Bothell Police Department, King County Sheriff's North Precinct 2, Lake Forest Park Police Department, Brier Police Department, Mountlake Terrace Police

Department, Shoreline Police Department, Edmonds Police Department, Woodway Police Department, and the Snohomish County Sheriff's Office South Precinct. Each of the local law enforcement divisions coordinate with local planning, community development, and public works departments to ensure that any type of project requiring temporary modification of a roadway does not significantly impede law enforcement response times to emergencies. Average response times for emergency services are shown in Table 17-2.

Law enforcement for the influent portion of the Route 9 corridors is provided by the Lake Forest Park Police Department, King County Sheriff's North Precinct 2, Bothell Police Department, Woodinville Police Department, and Snohomish County Sheriff's Office South Precinct.

The Cities of Bothell, Lake Forest Park, Mountlake Terrace, and Edmonds, and the Town of Woodway operate their own law enforcement divisions that provide police protection in each respective jurisdiction. See the Unocal Site Law Enforcement section below for a detailed description of the Edmonds Police Department service.

King County Sheriff's North Precinct 2 has jurisdiction over law enforcement in the Cities of Kenmore and Shoreline; however, both cities operate their own police departments and contract police officers with the King County Sheriff's Office. Unincorporated areas of King County in the project vicinity are also within the North Precinct 2 jurisdiction. Average response times to emergencies in Shoreline are 6.5, 10, and 25 minutes for Priority 1, 2, and 3 emergencies, respectively. In Kenmore, average response times are 6.8, 12.8, and 36 minutes for Priority 1, 2, and 3 emergencies, respectively (Hilmar, personal communication, 2002). The Shoreline Police Department closely coordinates with the City of Shoreline's Public Works and Planning Departments before and during construction projects to ensure there will be no traffic conflicts.

Route 9–195th Street Corridor

Except where noted below, existing public services and utilities along the Route 9–195th Street corridor are discussed under Affected Environment Common to Both Route 9 Corridors, above.

Fire Protection and Emergency Medical

Snohomish County Fire District No. 7, Woodinville Fire and Safety District, Bothell Fire and EMS Division, Northshore Fire District/King County Fire District No. 16, Shoreline Fire Department, Mountlake Terrace Fire District, and Edmonds Fire Department provide fire protection along the 195th Street corridor.

Law Enforcement

In addition to the law enforcement divisions listed for the influent portion of the Route 9 corridors, the Mountlake Terrace, Edmonds, Shoreline, and Woodway Police Departments are also responsible local law enforcement agencies along the 195th Street corridor. This corridor also passes through a small area of the City of Woodinville. Average response time for the Woodinville Police Department is 3 minutes (Wardstrom, personal communication, 2002).

Schools

Table 17-3 lists schools located within 1,000 feet of the Route 9–195th Street corridors or within the portal siting areas. Educational facilities, including sports fields and a community building, are included within a candidate portal site (Site 7A) along the Route 9–195th Street corridor. The building is currently used to host community education classes and activities. This site is located in a secondary portal siting area where construction is not likely; if needed, less than one-half acre would be required.

Table 17-3. Schools within 1,000 feet of the Route 9–195th Street Corridor or within the Portal Siting Areas

School District	Location	Schools
Northshore School District	Conveyance Corridor	Westhill Elementary
		Maywood Hills Elementary
		St. Brendan Elementary
		Kokanee Elementary
		Bothell H.S.
		W.A. Anderson Alternative School
Private	Conveyance Corridor	Heritage Christian Elementary
Shoreline School District	Conveyance Corridor	Lake Forest Park Elementary
	Secondary PSA 7	Aldercrest Learning Center

PSA – Portal Siting Area

Utilities

The Route 9–195th Street effluent tunnel would be located between a minimum of 50 feet and a maximum of 265 feet below the Lake Forest Park Reservoir. A portion of the Route 9–195th Street corridor is also under PSE high voltage transmission lines.

Portal 41 Influent Pump Station Option

Portal Siting Area 41 falls within the City of Bothell. As shown in Table 17-1, Bothell Fire and EMS Division, the Bothell Police Department, and Northshore School District

No. 417 are the public service providers for the City of Bothell. Utility purveyors are discussed above, under the Affected Environment Common to All Systems.

Route 9–228th Street Corridor

Except where noted below, existing public services and utilities along the Route 9–228th Street corridor are discussed under Affected Environment Common to Both Route 9 Corridors, above.

Fire Protection and Emergency Medical

Snohomish County Fire District Nos. 7, 10, and 1, Bothell Fire and EMS Division, Mountlake Terrace Fire District, Edmonds Fire Department, and Shoreline Fire District provide fire protection along the 228th Street corridor. Average response times for emergency services and law enforcement are shown in Table 17-2 above.

Law Enforcement

The 228th Street corridor passes through City of Brier, and a small area in the City of Woodinville. Average response times for the Brier and Woodinville Police Departments are approximately 3 minutes (Lowe, personal communication, 2002; Wardstrom, personal communication, 2002).

Schools

Table 17-4 lists schools located within 1,000 feet of the Route 9–228th Street corridor or within the portal siting areas. Approximately 2.5 acres of a school open field area on the northern portion of Brier Elementary School property (Site 30A) has been proposed as a candidate portal site. This site is located within a secondary portal siting area where construction is not likely.

Utilities

Utilities for the 228th Street corridor are discussed under Affected Environment Common to All Systems, above.

Table 17-4. Schools within 1,000 feet of the Route 9–228th Street Corridor or within the Portal Siting Areas

School District	Location	Schools
Northshore School District	Conveyance Corridor	Kokanee Elementary
		Bothell H.S.
		W.A. Anderson Alternative School
Edmonds School District	Secondary PSA 30	Brier Elementary School
	Conveyance Corridor	Mountlake Terrace Elementary
		Sherwood Elementary
	Conveyance Corridor	Edmonds/Woodway H.S.
	Conveyance Corridor	Westhill Elementary
		Maywood Hills Elementary
		St. Brendan Elementary
		Kokanee Elementary

PSA-portal siting area

Portal 41 Influent Pump Station Option

The affected environment for Portal Siting Area 41 is the same as discussed under the Route 9–195th Street corridor.

17.2.2.3 Outfall: Route 9

At Zone 7S, utility lines serving the Chevron Richmond Beach Asphalt Terminal could be present immediately to the west of the railroad tracks. As mentioned above, fiber optic or other utility lines could be located adjacent to the railroad right-of-way.

17.2.3 Affected Environment: Unocal System**17.2.3.1 Treatment Plant: Unocal****Fire Protection and Emergency Medical Services**

The Edmonds Fire Department provides fire protection and emergency medical services at the Unocal site. Three fire stations operate within the City of Edmonds. The closest station to the Unocal site is Edmonds Fire Department Station No. 17, located at 275 Sixth Avenue North, approximately 0.75 mile northeast of the proposed site. During 2001, the average response time to calls for service for the Edmonds Fire Department was approximately 5 minutes (Taylor, personal communication, 2002).

The City of Edmonds Fire Department has mutual aid agreements with neighboring jurisdictions to enhance fire protection and related emergency services. Mutual aid jurisdictions include Lynnwood, Mountlake Terrace, and Snohomish County Fire District No. 1.

Law Enforcement

The Edmonds Police Department, located at 250 Fifth Avenue North, provides law enforcement at the Unocal site and is located approximately 0.5 mile northeast of the Unocal site. The police department does not patrol activities along the Puget Sound shoreline or watercraft in the water. However, the department maintains a boat docked at the Port of Edmonds Marina that is used for dive rescue purposes (Compaan, personal communication, 2002).

Schools

Two elementary schools are located within 1 mile of the Unocal site (Figure 17-2). The schools, Sherwood and Westgate Elementary Schools, are part of Edmonds School District No. 15 (Edmonds, 2000).

Solid Waste Services

There are no solid waste facilities located on or in close proximity to the Unocal site. The Snohomish County Southwest Recycling and Transfer Station is located approximately 3 miles east of the Unocal site in Mountlake Terrace. The nearest solid waste transfer station in King County is the First Northeast Transfer Station, located in the City of Shoreline approximately 4.5 miles southeast of the Unocal site.

Water

The City of Edmonds owns and operates a major water distribution system that provides potable water service to the Unocal site. The Alderwood Water and Wastewater District supplies approximately 65 percent of the city's water, and Seattle Public Utilities contributes the remaining 35 percent. Both utilities are responsible for maintaining and operating water treatment and source facilities (Snohomish County, 2001).

Wastewater

The City of Edmonds operates and maintains a wastewater system that provides wastewater service to the Unocal site. The Edmonds Treatment Plant is located at 200 Second Avenue South, which is less than 0.5 mile northeast of the Unocal site. The plant was put into service in 1957 to provide primary treatment and was upgraded to secondary

treatment by 1991. It has the capacity to treat 11.8 million gallons per day (mgd) under maximum-month conditions and 40 mgd under peak-hour conditions. The current average annual flow rate is 6 mgd. The plant has preliminary treatment (screening and grit removal), primary sedimentation, air-activated sludge secondary processes, and chlorine disinfection for liquid treatment. The solids handling includes belt press dewatering and incineration.

The City of Edmonds through agreement with King County, Ronald Water District, Olympic View Water and Sewer District and the Cities of Lynnwood and Mountlake Terrace also provides wastewater service to the Town of Woodway, the City of Mountlake Terrace, the Olympic View Water and Sewer District, the Ronald Wastewater District, and areas of the City of Lynnwood (Snohomish County, 2001). King County has an agreement with Edmonds for treatment (by Edmonds) of sewage from the County's Richmond Beach service area. That service area includes the Town of Woodway. Modification of that agreement before its expiration in 2036 would require concurrence of both parties (King County and Edmonds). While Woodway is not a party to the County's agreement with Edmonds, King County has a separate agreement with the Town of Woodway that obligates the County to treat the town's sewage but does not specify how or where it will be treated. Under that agreement, those determinations are left to the County.

King County currently operates under a flow transfer agreement with Edmonds; however, Edmonds is not part of King County's service area, nor are Lynnwood or Mountlake Terrace. Under the flow transfer agreement with King County, the Edmonds Treatment Plant also treats wastewater from the western area of the City of Shoreline that is transferred by King County from its Richmond Beach Pump Station. In exchange, King County uses its Lake Ballinger pump station to pump wastewater generated in Mountlake Terrace and a portion of Edmonds to either the Edmonds or West Point Treatment Plants (see Chapter 2). The Unocal site is currently serviced by a private septic system (FHWA et al., 1998).

Other major wastewater facilities near the Unocal site include two outfalls and a number of wastewater trunk lines that are owned by the City of Edmonds. These trunk lines include one 8-inch-diameter and two 36-inch-diameter outfalls that enter Puget Sound north of the Port of Edmonds' breakwater. Both outfalls extend approximately 1,200 feet into the sound at a depth of about -60 feet mean lower low water (MLLW) mark (FHWA et al., 1998).

In addition, the Lynnwood Regional Wastewater Plant, 7.4-mgd capacity wastewater treatment plant, is located in the City of Edmonds 4 miles northeast from the Unocal site. The Lynnwood Treatment Plant's outfall extends approximately 1,000 feet into Puget Sound, near 170th Street SW. The outfall is a 36-inch high density polyethylene (HDPE) pipe located at a depth of approximately -200 feet MLLW (Davis, personal communication, 2002).

Storm Sewer

The storm drainage system in the vicinity of the Unocal site consists of a network of pipes, streams, wetlands, detention systems, and ditches. The City of Edmonds maintains a 24-inch storm drain along Dayton Street that discharges through a 30-inch-diameter outfall into Puget Sound. This outfall is located south of the wastewater outfalls described above. The Edmonds Way trunk storm drain is a 54-inch-diameter pipe that drains runoff from SR-104 into Puget Sound via a 72-inch-diameter outfall at Marina Beach Park.

Willow Creek, which flows around the northern perimeter of the Unocal site, is a natural drainage system that flows into the Edmonds Marsh and is drained by a 48-inch-diameter pipe that discharges into Puget Sound from an outfall at Marina Beach Park. (Refer to Chapter 6 for a discussion of surface water features on the site.)

A wetland/detention pond located on the northern part of the Unocal site functions as a stormwater collection pond for the site. This system discharges into a ditch that parallels the railroad before draining into the city's 48-inch storm pipe (FHWA et al., 1998). (Refer to Chapter 7 for a complete description of this wetland/detention pond.)

Electricity and Natural Gas

Snohomish County PUD No. 1 and PSE provide electrical and natural gas service to the site, respectively. Electrical and natural gas purveyors to the Unocal site are discussed in Chapter 8.

Communications

T-Mobile underground telephone conduits are located near the Unocal site. An underground telephone cable extends in an east-west direction through the SR-104/Pine Street intersection and extends approximately 500 feet west of SR-104 along the south side of Pine Street before emerging above ground and continuing along the remaining length of Pine Street. Above ground telephone cables exist along portions of the BNSF railroad right-of-way.

17.2.3.2 Conveyance: Unocal

Public services along the Unocal corridor were inventoried by reviewing city comprehensive plans, capital facilities plans, and public services' Web sites. The jurisdictions include the Cities of Bothell, Kenmore, Lake Forest Park, Shoreline, Mountlake Terrace, and Edmonds, the Town of Woodway, and unincorporated King and Snohomish Counties. The Unocal corridor passes through three school districts, six fire and emergency districts, and eight law enforcement service areas (See Table 17-1 and Figures 17-1 and 17-2). Water and sewer district service areas are shown in Figure 17-3.

Fire Protection and Emergency Medical

The Unocal corridor passes through the following fire protection districts: Bothell Fire and EMS Division, King County Fire District No. 16, Snohomish County Fire District No. 1, Shoreline Fire Department, and Edmonds Fire Department.

Law Enforcement

Local law enforcement agencies that fall within the Unocal corridor from east to west, include the Bothell Police Department, King County Sheriff's North Precinct 2, Lake Forest Park Police Department, Mountlake Terrace Police Department, Shoreline Police Department, Edmonds Police Department, Woodway Police Department, and the Snohomish County Sheriff's Office, South Precinct. Each of the local law enforcement divisions is described under the Route 9–195th Street corridor discussion, above.

Schools

Table 17-5 lists schools within 1,000 feet of the Unocal corridor or portal siting areas. Aldercrest Learning Center is the only school that falls within a portal siting area along the Unocal corridor. A portion of the athletic field associated with Aldercrest Learning Center in Portal Siting Area 7-a primary portal siting area for this corridor- has been identified as candidate Site A.

Table 17-5. Schools within 1,000 feet of the Unocal Corridor or within Portal Siting Areas

School District	Structure	Schools
Northshore School District	Conveyance Corridor	Bothell H.S.
	Secondary PSA 13	W.A. Anderson Alternative H.S.
	Conveyance Corridor	Lake Forest Park Elementary
Shoreline School District	Primary PSA 7	Aldercrest Learning Center
Edmonds School District	Conveyance Corridor	Edmonds/Woodway H.S. Sherwood Elementary

PSA-portal siting area

Utilities

Utilities for the Unocal corridor are discussed in the Affected Environment Common to All Systems, above.

17.2.3.3 Outfall: Unocal

Utility lines serving the Edmonds Marina and a local park may be present in the vicinity of Outfall Zone 6. In addition to the electrical transmission facilities mentioned above, a number of underground electrical conductors are located along Admiral Way and on Port of Edmonds property between Admiral Way and the BNSF railroad right-of-way (FHWA et al., 1998).

Puget Sound Energy supplies natural gas in the vicinity of the outfall zones. A 4-inch-diameter trunk line follows Dayton Street across the BNSF right-of-way and travels south along Admiral Way to the vicinity of outfall Zone 6. Other underground utilities located in the project area include GTE telecommunications facilities, cable television lines provided by Comcast, and two subsurface marine communication cables that are within the BNSF right-of-way (FHWA et al., 1998).

17.3 Impacts and Mitigation

An analysis of potential impacts to public services and utilities was conducted through limited site reconnaissance; personal communications; and research of capital facilities plans, utility plans, comprehensive plans, geographic information systems (GIS) data, and various public services and utility Web sites.

The following section describes potential impacts to public services (fire protection, emergency medical, law enforcement, schools, and solid waste) and utilities (water, wastewater, electricity, natural gas, and telecommunications) on or within the immediate vicinity of the Brightwater treatment plant sites, conveyance corridors, and outfall zones.

In addition, this section identifies those portals that may require disposal of groundwater removed during construction into the local sanitary sewer system, identifies the local wastewater jurisdiction, and relates the required dewatering volumes to the local sewer capacities. See Appendix 6-F, Groundwater and Stormwater Management at the Candidate Portal Sites, for additional information on stormwater and groundwater management at the conveyance system portal sites during construction and operation.

17.3.1 Impacts and Mitigation Common to All Systems

17.3.1.1 Treatment Plant Impacts and Mitigation Common to All Systems

Construction Impacts Common to All Systems: Treatment Plant

Public Services

Impacts to public services during construction are generally caused by disruption of local roadways used by public and emergency service vehicles, or temporary disruption of utility service. Public scoping comments expressed concern regarding public facility and schools access, emergency vehicle access, emergency response times, and utility service disruptions during construction. Draft EIS comments requested information relating to the ability of fire, police, and emergency service providers to respond to emergencies that could arise during construction.

Emergency service response times could be impacted by increased traffic along nearby roadways resulting from construction activities. In some cases, construction projects have minimal impact on response times since emergency vehicles have priority to local roadways over passenger vehicles. Because precise construction areas have yet to be determined, the impact of construction activities on response times would largely depend on the exact location and duration of the construction at the treatment plant site. No significant impacts to law enforcement, fire, and emergency service response times are expected from roadway disruption resulting from construction activities at either treatment plant site. King County would develop a Transportation Management Plan (further discussed in Chapter 16) during the design stage of the project. This plan would detail transportation mitigation measures during construction, including the use of flaggers. In addition, local police, fire, and emergency agencies would be notified of possible traffic disruptions or lane closures.

All construction traffic routing would be coordinated with local emergency service providers, schools, and utilities to minimize potential impacts resulting from construction traffic. Other services that could be affected by such delays include hospitals, educational facilities, post offices, libraries, community and social service centers, government offices, and solid waste transport services. Specific schedule-related construction impacts are discussed under each treatment plant in following sections.

Increased noise and dust during the construction period could temporarily disrupt users of public services such as nearby schools, libraries, post offices, and police and fire stations. (Refer to Chapter 5 for a discussion of dust impacts and Chapter 10 for a discussion of noise impacts associated with construction activities.)

Utilities

Construction impacts to utilities typically relate to the need to relocate a utility or temporarily disrupt utility service. Construction impacts would also include the extension of water, electric, natural gas, and communication services to the treatment plant site. Impacts from these activities would be similar to those of construction of conveyance piping, and could include traffic delays, noise, and dust.

Dewatering would be required at either treatment plant site. King County has identified certain disposal options for dewatering volumes that include discharging groundwater into a stormwater drain, surface water system, or local sanitary sewer; infiltrating the water into the aquifer from which the groundwater is drawn (groundwater recharge); or a combination of some or all of these disposal methods. See Chapter 6 and Appendix 6-C, Management of Water Quality During Construction at the Treatment Plant Sites, for additional information on stormwater and groundwater management.

Based on preliminary evaluation and communications with local wastewater service providers, no significant capacity issues that would prohibit the discharge of necessary dewatering volumes to local sewer systems were identified.

As discussed in Chapter 8, electricity to either treatment plant site would be supplied by Snohomish County PUD No. 1 via two independent 115-kilovolt (kV) electrical feeders. A dual high-voltage substation would be required onsite to step down the voltage from 115kV to 15kV or 12.5kV for distribution to the plant substation, which would further reduce the voltage use throughout the plant. Chapter 8 provides detailed information regarding energy supply and resources to the treatment plant sites. Construction-related impacts include disruption of existing roadways and rights of way, noise, dust, and temporary inconvenience to adjacent residents. In some cases, vegetation may be removed for placement of utility poles; areas would be limited to that required for utility pole construction. Aesthetic impacts could occur in areas of new utility line construction as described in Chapter 12. Significant impacts are not anticipated, however, additional site-specific evaluation will be done as part of the permitting process.

Operation Impacts Common to All Systems: Treatment Plant

Public Services

No significant impacts to public services are expected from the long-term operation of the Brightwater Treatment Plant on either site. Development of the treatment plant may result in the need for emergency response to the site and routine inspections by the fire department; however, it is not expected to result in a significant increased demand for service. Response procedures to potential emergencies that could arise during operation of the wastewater treatment plant are discussed in Chapter 9.

Utilities

Impacts to utility services resulting from Brightwater operations include an increased demand for electrical power and natural gas service. The demands for these services are discussed in Chapter 8.

No significant impacts to water, stormwater, or communications are anticipated, as the service providers have the capacity to provide these flows. Wastewater from the site will be routed directly to the Brightwater Treatment Plant, and conveyance from the site to the nearest interceptor will not be required.

The water demand of the treatment plant will be approximately 350 gpm for continuous use (potable water, laboratory use, etc.). The average fire flow for a 1-hour period would be approximately 2,000-2,500 gpm of water. Five mgd of reclaimed water capacity will be provided at the treatment plant site when it comes online in 2010. Space for expansion will be reserved onsite to provide up to 54 mgd of reuse water in the long term as demand increases and other potential receivers of the effluent reuse water are identified. The reclaimed water will be used at the treatment plant site for irrigation, tank cleaning, and other processes that do not require potable water. Appendix 3-D, Reclaimed Water Technology Review and Evaluation of Potential Reuse Opportunities, details the water reuse program and possible demand for reclaimed water.

Proposed Mitigation Common to All Systems: Treatment Plant

Public notification of proposed construction activities, including timing of construction, would be provided to all local service providers and schools within the immediate vicinity of the treatment plant site. Construction traffic routing would be planned to maintain free-flowing traffic conditions and minimize potential increases to response times for emergency vehicles. King County will develop construction traffic plans in accordance with local permitting requirements to ensure emergency service providers identify emergency access routes that are to be maintained during construction activities.

An Emergency Response Plan addressing construction and operation safety issues and response procedures to emergencies will be prepared prior to the construction phase of the Brightwater project. King County will coordinate with local fire and emergency service providers to ensure they have the necessary training and equipment to assist in an emergency related to the Brightwater System. Additionally, safety personnel provided by contractors will be present at construction sites in accordance with the Occupational Safety and Health Administration (OSHA) and Washington Industrial Safety and Health Act (WISHA) requirements. Both regulations are briefly addressed in Chapter 9. In case of an emergency at a construction site, the contractor would be the first to respond, with local fire and emergency service agencies providing backup support if required.

A Spill Prevention, Containment, and Control Plan that outlines specific procedures that construction and emergency service providers would follow in the event of an accidental hazardous materials spill will be prepared in accordance with the Washington Department of Ecology standards.

In the event it is necessary to discharge dewatering volumes into local sewer systems, King County would coordinate with the affected service provider during the design phase of the project to determine agency requirements for connecting to the sewer system, and comply with the Industrial Waste Discharge permit. The County would also coordinate with local solid waste services to ensure that demolition debris would not exceed the capacity of local facilities.

During the design phase of the selected Brightwater System, King County would coordinate with affected local and regional utility service providers to assist in utility locations and to identify specific mitigation measures to minimize impacts to utility customers.

King County will coordinate with energy providers and affected jurisdictions to minimize impacts associated with the utility line construction.

A portion of the water/fire flow demand from treatment plant operations can be provided from reclaimed water produced at the site. For either treatment plant site, 5 mgd of reclaimed water capacity would be provided at the treatment plant when it comes online in 2010. This will significantly reduce its demand for potable water.

Water Supply Contingency Plan

A Water Supply Contingency Plan, or Potable Water Supply Plan would be developed in case of disruption to local potable water service during construction. During construction, there may be occasions where water service to residences or businesses could be interrupted for short durations, in most cases lasting no more than a few hours. During the project design phase, King County will contact affected water purveyors to identify the potential for and coordinate any necessary system disruptions. Further geotechnical evaluation will also be conducted to assess the potential for drawdown of wells. For those areas that are identified to have a greater potential for drawdown, wells would be measured. In order to ensure all water service is accounted for, King County will also be completing an analysis to identify any unrecorded wells that could be impacted by project construction.

A number of options will be considered as mitigation for potential water system disruptions, depending on the individual situation. For short-term disruptions, bottled water would be provided or water would be trucked in. In some instances where longer-term disruptions are anticipated, temporary hookups and service would be provided. In these cases, the system and hookups would be installed prior to Brightwater construction activities to provide continuous service. King County would pay for the construction of and service for individuals connected to the temporary system. In situations involving private wells, connections would be made to nearby frontage services or new wells would be drilled if impacts were permanent. Additional discussion is provided in Chapter 6.

17.3.1.2 Conveyance Impacts and Mitigation Common to All Systems**Construction Impacts Common to All Systems: Conveyance**

Scoping comments on public services and utilities expressed concerns regarding public facility and schools access, emergency vehicle access, emergency response times, and utility service disruptions during construction of portals and other conveyance features. In addition, there was concern related to the potential for ground settlement within the utility corridor and its effect on existing underground utilities.

Public Services

Construction impacts to public services would generally be caused by disruption of local roadways used by public and emergency service vehicles. Additional services that could be disrupted by construction include hospitals, educational facilities, post offices, libraries, community and social service centers, government offices, and solid waste transport services.

Major roadways that are primary routes for emergency vehicles and that could be affected by construction activities for all alternatives include, but are not limited to, SR-522, and NE 205th Street. Emergency vehicles would be subject to traffic congestion, which in turn could increase response times. It is difficult to accurately predict increased response times, because numerous factors could affect response time.

Students and faculty at schools near construction activities would temporarily be subject to increased levels of noise and dust during construction. Microtunneling pits could require a maximum of 0.25 acre but would be filled in and restored to preconstruction conditions after construction is complete. Portals may also be filled in and restored or become permanent tunnel access, odor control, ventilation, or dechlorination facilities.

Utilities

All utility corridors were evaluated for major conflicts with the proposed conveyance systems. In performing this analysis, information was gathered on major regional utilities. Olympic Pipe Line Company, SPU, King County sanitary sewers, and high voltage power transmission lines (PSE, Seattle City Light, and Snohomish PUD No. 1) were identified as having major regional utilities in the project area.

The Olympic pipeline traverses north-south with two pipes 16 and 10 inches in diameter. The small size of these pipelines allows the design of the Brightwater conveyance pipes to go beneath the Olympic pipelines with no conflict. Excavation around the existing Olympic pipelines would not be needed.

Bonneville Power Administration (BPA) owns and operates transmission lines and substations in the vicinity of the conveyance corridors (BPA, 2003). During the design phase of the project, King County would coordinate with BPA to determine the exact location of transmission lines.

Groundwater is anticipated at each of the portal siting areas along all conveyance corridors. Dewatering rates have been determined for each of the primary portal siting areas; dewatering rates for secondary portals will be determined during the final design stage if secondary portals are required for the selected Brightwater Regional Wastewater Treatment System. King County would propose different groundwater discharge options, depending on the site conditions, water quality, and flow rate. Refer to Chapter 6, Water Resources and to Appendix 6-F, Groundwater and Stormwater Management at the Candidate Portal Sites, for a description of the proposed groundwater discharge options and the estimated dewatering rates at the primary portals.

Both the Route 9 and Unocal influent corridors would cross the SPU Tolt Pipeline, responsible for conveying potable water. Tunnel depths would range from 45 to 135 feet below ground in the Tolt Pipeline vicinity and would likely be located below the Tolt Pipeline. King County will coordinate closely with SPU during conveyance design to avoid conflicts with this pipeline.

King County has some large-diameter (over 4 feet in diameter) sewer pipes within the conveyance route corridors. The new proposed pipe would avoid these existing pipes by being constructed at a lower elevation. In addition, several of the existing pipes will need to be connected to the new influent tunnel.

A number of high-voltage power lines are located in the project area. Tunneling under the transmission lines is not a concern. However, tunnel portals need to be located to either side of such power lines or the power line will need to be taken out of service during some construction activities. Power transmission lines can be taken off line temporarily during construction if it is anticipated construction activities would interfere with the power lines.

Utility congestion within the project area was assessed and found to be low. “Low” congestion implies that the corridors typically have water, sanitary sewer, natural gas, and overhead power/cables with utility crossings at intersections. Based on review of utility information, there is sufficient width of existing right-of-way available to locate the conveyance pipe without the relocation of a parallel utility.

During the portal design process, data will be collected on all utilities located within and adjacent to selected portal sites. The location of the identified utilities will be assessed when finalizing the location for each portal. Portal sites would be located to avoid significant major regional utilities. The primary potential conflict would be caused by congestion within utility corridors in the publicly owned streets, roads, and rights-of-way. Portals will not be located in public right-of-way, which is where most utilities are located. Therefore, a conflict with an existing utility at each portal site is not anticipated. If a conflict is identified, the utility can be relocated.

Construction of portals, microtunneling pits, and any permanent facilities may require relocation of an existing utility. If this work is required, the new utility is generally constructed prior to abandoning the existing utility. Most utility work would be planned to avoid service disruptions; however, some disruption up to a few hours could occur. Also, occasionally a utility may be accidentally broken during construction, thereby resulting in a service disruption. Customers potentially impacted by planned service disruptions will be notified prior to the relocation. The anticipated procedures are described in the Mitigation Measures section of this chapter. No long-term impacts are anticipated.

During construction, as a worst-case evaluation, it would be assumed that a facility requiring electrical service would be located at each portal siting area and that each facility would draw power from the nearest substations. Impacts of installing transmission lines could include street disruption, temporary utility construction, minor vegetation losses, noise, dust, etc. See Chapter 8 for a complete discussion of electrical power requirements along the conveyance corridors.

The tunnels would range in depth between 40 to more than 450 feet below the ground surface, depending on the topography above the tunnel and the pipe gradient needed to maintain flow. A comprehensive geotechnical analysis along the selected conveyance

corridor would be completed prior to construction to determine the potential for soil movement that could result in settlement of utilities.

Open cut and/or microtunnel construction would be used to install short lengths of pipe connecting the existing systems to the Brightwater influent tunnel. Design of the connections will seek to avoid utility conflicts and potential service disruptions.

In addition, dewatering would be required at portal siting areas along each of the conveyance corridors. King County has identified a disposal option for groundwater that would discharge groundwater to the local sanitary sewer, if required. A direct connection would be made from the portal construction area to the nearest sewer line.

In general, average dewatering at portal siting areas would range from 50 to 100 gallons per minute (gpm). Maximum dewatering volumes could reach up to 250 gpm at individual portal siting areas. Based on preliminary evaluation and communications with local wastewater service providers, no significant capacity issues that would prohibit the discharge of necessary dewatering to local sewer systems were identified. Impacts associated with dewatering are discussed further below.

Construction impacts associated with connecting existing systems could include street disruption, temporary utility construction, minor vegetation losses, noise, dust, etc.

Operation Impacts Common to All Systems: Conveyance

Portal or pump station operations along the Route 9 or Unocal corridors are not expected to impact public services or utilities. Once construction is complete, there would be no potential for ongoing impacts to emergency response times or utility provision. Streets would be restored to preconstruction conditions. Portals may either be filled in and restored to preconstruction conditions or become the location of permanent above-ground structures for tunnel access, odor control, dechlorination, or a pump station facility. Because permanent facilities would require regular inspection and maintenance, King County employees on occasion may cause a minimal increase in traffic (e.g., an occasional single truck trip). Maintenance schedules for the tunnels and permanent facilities located at the portals have not been developed, but would typically include twice weekly to as much as once daily visits by King County operations and maintenance staff for routine inspection of permanent facilities. On occasion several daily trips may be required, but for a limited period. Long term energy requirements are discussed in Chapter 8.

Proposed Mitigation Common to All Systems: Conveyance

Public Services

As discussed under the Treatment Plant mitigation section above, public notification of proposed construction activities, including the project location and timing of construction, would be provided to all local service providers and schools within the immediate vicinity of the portal siting areas. Construction traffic routing would be planned to maintain free-flowing traffic conditions and avoid potential increases to response times for emergency vehicles. King County will develop construction traffic plans in accordance with local permitting requirements to ensure emergency service providers identify emergency access routes that are to remain during construction activities.

An Emergency Response Plan addressing construction and operation safety issues and response procedures to emergency situations will be prepared prior to the construction phase of the Brightwater project. King County will coordinate with local fire and emergency service providers to ensure they have the specialized training and equipment to respond to emergencies related to the Brightwater System, including confined space rescue.

Because each of the conveyance corridors includes a school within or near an identified candidate portal site, dust, noise and traffic impacts would be mitigated with the use of best management practices (BMPs) and other measures to minimize exposure to students and faculty. (Refer to Chapters 5, 10, and 16 for a discussion of measures that would be used to mitigate air, noise, and traffic impacts during construction.)

Utilities

During the design phase of the selected Brightwater System, King County would coordinate with affected local utility service providers to assist in utility locations and to identify specific mitigation measures to minimize impacts to utility customers. If the potential for utility settlement were determined to exist, the project would be designed to reduce that potential by including the use of grouts or alternative tunneling techniques. Critical utilities would be monitored during tunneling to determine if settlement is occurring.

Utility information (including location) would be requested. Additionally, any existing utilities would be located during the project survey in order to design a project that minimizes disruptions. If it is necessary to relocate an existing utility, the utility purveyors would be consulted on relocation options.

Planned service disruptions would be made in accordance with all requirements of the utility purveyors. This would generally consist of advance notification to users and a requirement to minimize service disruptions. All service disruptions would be minimized by the preconstruction design survey. Accidental breakages would be repaired as soon as possible to minimize utility disruptions to customers.

In the event it is necessary to discharge groundwater into local sewer systems during the design phase of the project, King County would coordinate with the affected service provider to determine agency requirements for connecting to the sewer system. Refer to Appendix 6-F, Groundwater and Stormwater Management at the Candidate Portal Sites, for a description of local jurisdictions' drainage requirements.

A water supply contingency plan would be developed as described for the treatment plant.

17.3.1.3 Outfall Impacts and Mitigation Common to All Systems

Construction Impacts Common to All Systems: Outfall

Offshore segments of all outfall alternatives would cross known utility cable areas established by the U.S. Army Corps of Engineers. The COE is responsible for permitting any construction within that area and maintaining records of in-water utility cables.

The outfall zones extend approximately 5,200 feet offshore. Both outfall alternatives include approximately 1,000 feet of pipeline onshore that would require excavation and may affect public services and utilities.

On-land construction activities would originate from a staging area up to 525 feet in width near the shoreline that would be required to construct the 5-foot diameter (approximate) outfall pipeline. The staging area would be located near the effluent pump station for the Unocal treatment plant site or at Portal 19 for the proposed Route 9 site. From the staging area, the outfall pipeline would proceed toward the shoreline by means of sheeted trench (preferred method) or tunnel construction. Excavation is not expected to encounter a significant number of electric, sewer, natural gas, or other public utility lines.

Offshore outfall segments would be installed directly on the seafloor through a combination of sheeted trench and unsheeted trench construction and could cross established in-water utility cable corridors. Depending on whether or not cable lines are buried, in-water installation could damage existing cable lines if these lines are undetected or unknown prior to construction. In-water utilities would be identified during the outfall design process to avoid potential damage.

Operation Impacts Common to All Systems: Outfall

No impacts to public services or utilities are anticipated from the operation of the outfall at either the Zone 6 or Zone 7S locations.

Proposed Mitigation Common to All Systems: Outfall

The following measures are recommended to mitigate potential adverse impacts associated with construction and operation of outfall:

- Determine the presence of utility lines by contacting utility agencies and using a utility locator service during final design and prior to excavation.
- Confirm final outfall alignment and request locations of any in-water utility cables prior to placement of offshore outfall pipelines. Other means may also be used to locate in-water utility cables such as underwater video and magnetic profiling.
- Short, bridged sections of the offshore pipeline may span the identified in-water utility cables to prevent damage to cables during outfall construction and operation.

17.3.2 Impacts and Mitigation: Route 9 System

17.3.2.1 Treatment Plant: Route 9

Construction Impacts: Route 9 Treatment Plant

Except where noted, public services and utility impacts from construction of the treatment plant at the Route 9 site would be the same as those discussed under Impacts and Mitigation Common to All Systems for the treatment plant. There is adequate utility capacity to serve the treatment plant at the Route 9 site.

Debris from site clearing would require disposal or recycling at a qualified solid waste facility. Onsite demolition would result in the removal of several existing structures that include two office buildings, a maintenance building, three or four small residential buildings, and multiple small businesses within the Route 9 site totaling approximately 50,000 square feet. In addition, approximately 5,000 square feet of trees and shrubs and 1,131,000 square feet of asphalt would need to be removed. The total amount of debris requiring disposal expected during the demolition phase is over 25,000 tons (approximately 18,000 cubic yards). As previously indicated, the Snohomish County Southwest Recycling and Transfer Station located in Mountlake Terrace is the closest solid waste facility to the Route 9 site. A portion of the debris could be taken to the recently opened recycling plant located near SR-522 and NE 190th Street in Woodinville; this facility is designed to handle construction-related waste.

The Cross Valley Water District currently has water and sewer lines that run along the Route 9 easement and cross the site at the UGA boundary. Impacts to distribution lines within the street rights of way are not anticipated; however, onsite water and sewer

connections and distribution networks would be decommissioned or relocated during the construction phase. King County would notify the Cross Valley Water District in the event of planned water or sewer utility service disruptions or potential utility decommission, in accordance with the district's requirements.

Since the current stormwater management guidelines for the new treatment plant site are more stringent than the existing site standards, all the existing storm sewer system would be removed or upgraded with appropriate detention and treatment to comply with the current guidelines. (See Chapter 6 for a discussion of the onsite drainage system and surface water impacts.)

Based on the current load projections in the Southeast Snohomish County area, in 2005 the Snohomish PUD anticipates constructing a new 115kV line (as an overbuild to an existing 12kV line) from Turners Corner substation to the intersection of SR-9 and 228th Street SE. Here it will connect to an existing 115kV line to the west, completing a tie between Park Ridge substation, BPA's SnoKing substation, and Turners Corner substation. This line is expected to pass adjacent to the Route 9 Brightwater Treatment Plant site. Construction would require augering (8 to 9 feet into the ground) at the pole locations (approximately every 300 feet) and minor concrete and earthwork at each pole location. Existing utilities would also likely require relocation. The addition of the new line would increase the height of the power lines. The poles would be approximately 80 feet high and include the 115kV lines on top with the 12kV lines below them on the same poles. The impacts of installing the transmission line could include temporary street disruption, temporary utility construction, minor vegetation losses, noise, and dust but may be less than would occur for the Unocal site because the transmission line would be overhead instead of underground. See Chapter 8 for a complete description of energy resources at the Route 9 site.

Extension of gas service to the site, if done, would require open cut trenching. Impacts from open cut trenching include traffic delays, noise, and dust. Because natural gas service is located adjacent to the Route 9 site, construction impacts would be minimal. (See Chapter 8 for a discussion of electrical and natural gas facilities near the Route 9 site.)

Operation Impacts: Route 9 Treatment Plant

Impacts of operating the Brightwater Treatment Plant at the Route 9 site would be similar to those discussed under Impacts and Mitigation Common to All Systems.

Two schools exist within 1 mile of the Route 9 site: Kokanee Elementary School and Woodinville High School. These two schools would experience similar operational impacts as described above under the Impacts and Mitigation Common to All Systems discussion.

Water demand from the treatment plant operations would be offset by using reclaimed water produced at the site. Approximately 5 mgd of reclaimed water capacity would be

provided at the treatment plant when it comes online in 2010; therefore the treatment plant is expected to use reclaimed water for most onsite needs with the exception of potable water requirements.

Although there is adequate capacity to serve the site, utilities in the area such as power and natural gas would need to be upgraded to meet the demand of the treatment plant. (See Chapter 8 for a discussion of impacts.)

Proposed Mitigation: Route 9 Treatment Plant

Except where noted, mitigation for public services and utilities would be the same as that discussed under Impacts and Mitigation Common to All Systems.

Traffic impacts would be mitigated by sufficient public notice of construction dates before and during construction. King County will coordinate with all local emergency service providers regarding any proposed roadway modifications.

Noise and dust associated with construction activities would be minimized through the use of BMPs, including using muffling and/or sound-control devices and emission control equipment. Refer to Chapters 5 and 10 for a detailed description of BMPs that will minimize adverse construction effects.

During the project design phase, utility purveyors potentially impacted by the Brightwater project would be contacted and utility location information would be requested in an attempt to avoid utility conflicts, where possible.

King County would prepare a Water Supply Contingency Plan, also known as a Potable Water Supply Plan, designed to be implemented if water service, including service to private well owners, were affected during treatment plant construction at the Route 9 site. Such measures would include providing alternative water service on both a short-term and, if necessary, long-term basis to any water customer who experiences a depletion, interruption, or reduction in the yield of water supply, or a degradation in water quality, related to construction of the Brightwater Treatment Plant. The plan would also include results of a preconstruction survey of existing private wells within and adjacent to the Route 9 site documenting preconstruction water quality and well characteristics. If the county is notified by a local water customer that the water supply has been diminished, interrupted, depleted, or degraded, King County would provide an ample supply of bottled water, and/or a fully functioning temporary potable water supply for all domestic purposes until the water supply is returned. Refer to Appendix 6-B, Geology and Groundwater, for description of additional mitigation measures proposed in the event of water impacts to private well owners.

Prior to construction activities, King County would coordinate with local solid waste purveyors to ensure the debris created during the 2-month demolition phase would not exceed the capacity of local facilities. Specifically, debris from construction at the Route

9 site could be transported to the new recycling plant under construction near SR-522 and NE 190th Street in Woodinville.

17.3.2.2 Route 9–195th Street Corridor

Construction Impacts: Route 9–195th Street Corridor

Excepted where noted, construction impacts to public services and utilities along the Route 9–195th Street corridor would be similar to construction impacts listed in the Impacts and Mitigation Common to All Systems section.

Given that the Route 9–195th Street corridor is longer and requires more portals than the Unocal corridor, potential for utility conflicts and other impacts would be greater.

Public Services

There are no hospitals, fire stations, or other emergency service providers located within portal siting areas for this corridor. Therefore, no direct impacts to emergency service provider facilities are anticipated. Impacts relating to emergency response times are anticipated, as described under Impacts and Mitigation Common to All Systems section. Candidate portal sites associated with Portal Siting Area 11, a primary portal, are in close proximity to SR-522. Construction at these candidate portal sites could increase congestion on this arterial and increase emergency response times.

Along the Route 9 corridor, Portal Siting Area 7 is considered a secondary portal and would not likely be required. Less than one-half acre would be required if the secondary portal site were needed. A candidate portal site (Site 7A) within this siting area falls within the Aldercrest Learning Center school property on a sportsfield and a portion of a running track. Construction activities would not result in a direct impact on the two school buildings; however, the recreational areas used by students and the community would be closed if the site were selected as a portal site.

Construction along the 195th Street corridor is likely to affect small local streets and an arterial roadway (SR-104) in Edmonds. Construction access can be disruptive to traffic flow; however, as discussed in Chapter 16, construction vehicle traffic is not anticipated to significantly adversely affect existing traffic conditions at the portal sites; nor to disrupt emergency vehicle response times. No detours are proposed during construction along the Route 9–195th Street Corridor. As described above, King County will coordinate closely with local emergency service providers to ensure that emergency access is maintained at all times, and that construction access routes are chosen to minimize potential for increased congestion. Refer to Chapter 16 for a more detailed discussion of construction-related traffic impacts.

Utilities

As previously mentioned, groundwater removal would be required at certain portal siting areas along each of the conveyance corridors. Along the Route 9–195th Street corridor, preliminary evaluation indicates dewatering from primary and secondary portals may require discharging removed groundwater into local sanitary sewer systems. Based on initial communications with service providers, there appears to be adequate capacity to accommodate dewatering rates. Additional site-specific evaluation will be conducted to determine the exact amount of anticipated dewatering volumes. Refer to Appendix 6-F, Groundwater and Stormwater Management at the Candidate Portal Sites for a complete description of dewatering requirements at each portal siting area, and Appendix 6-B, Geology and Groundwater.

Portal 41 Influent Pump Station Option

Impacts to public services and utilities during construction are the same as those described above.

The construction of the deep shaft required for the pump station at the treatment plant site increases risks in the event emergency rescues are needed. There will be a reduced risk of complicated rescue operations with construction of the IPS at Portal 41 because of its decreased depth, reducing the potential impact on fire and police services. King County will coordinate closely with local emergency service providers to ensure that emergency access is maintained at all times, and that construction access routes are chosen to minimize potential for increased congestion. Once construction is complete, impacts to service providers are expected to be no greater than for other business uses.

Operation Impacts: Route 9–195th Street Corridor

No significant, long-term, operational impacts would be associated with the operation of portals along the conveyance corridors. Kokanee Elementary School, located within the tunnel corridor for both proposed Route 9 corridors, and Woodinville High School, located approximately 0.5 mile south of both corridors, would not experience any adverse impacts from operation of the conveyance pipelines.

Portal 41 Influent Pump Station Option

Operation of the IPS is not expected to result in impacts to public services or utilities. Puget Sound Energy indicates adequate capacity to provide electrical and natural gas service to the pump station (see Chapter 8). Once construction is complete, there would be no potential for ongoing impacts to emergency response times or other utilities.

The Portal 41 IPS option would reduce the power demand from Snohomish County PUD No. 1 at the Route 9 treatment plant site.

Proposed Mitigation: Route 9–195th Street Corridor

In addition to mitigation listed under Impacts and Mitigation Common to All Systems, the following measures would be implemented to minimize impacts to public services and utilities for the Route 9–195th Street corridor.

- Local emergency service providers would be notified prior to construction.
- If the Aldercrest Learning Center (Candidate Site 7A) were selected as a portal site at secondary Portal Siting Area 7, King County would coordinate with the school to ensure that construction activities do not significantly impact school activities and that proper safety measures are in effect during all facets of construction and operation of the portal.
- Portions of the Route 9 corridors are located under PSE or Snohomish County PUD No. 1 power transmission lines. According to OSHA and WISHA regulations, a separation must be maintained between construction equipment and live power lines. King County would comply with these requirements at each portal. This requirement could be met in one of two ways: (1) the power lines can be shut off daily during construction, or (2) the portals can be located to provide the separation required. All construction would comply with safety requirements and PSE requirements.
- In the event it is necessary to discharge removed groundwater into local sewer systems, during the design phase of the project, King County would coordinate with the affected service provider to determine agency requirements for connecting to the sewer system. In addition, King County would comply with stipulations established in the Industrial Waste Discharge Permit required by King County for dewatering.

17.3.2.3 Route 9–228th Street Corridor**Construction Impacts: Route 9–228th Street Corridor**

Except where noted, construction impacts for the Route 9–228th Corridor would be similar to those discussed under Impacts and Mitigation Common to All Systems.

Public Services

There are no hospitals, fire stations, or other emergency service providers located within portal siting areas for this corridor. Therefore, no direct impacts to emergency service provider facilities are anticipated. Impacts relating to emergency response times are anticipated, as described under Impacts and Mitigation Common to All Systems section. Impacts associated with candidate portal sites in Portal Siting Area 11 are discussed under the Route 9–195th Street Corridor, above.

Brier Elementary School (Candidate Site 30A) lies within Secondary Portal Siting Area 30 (Figure 17-2) in the Route 9–228th Street corridor. If this candidate site were selected, about one-half acre of the school property could be temporarily closed, and access could be restricted near the construction site. Additional indirect construction impacts would include noise, dust, and traffic disruption that would be detected by parents, students, and faculty. No other schools fall within portal siting areas along the Route 9–228th Street corridor.

Utilities

Along the Route 9–228th Street Corridor, preliminary evaluation indicates dewatering may require discharging removed groundwater into the local sanitary sewer systems at certain portal siting areas. See Appendix 6-B, Geology and Groundwater, and Appendix 6-F, Groundwater and Stormwater Management at the Candidate Portal Sites for a description of required dewatering volumes along the Route 9–228th Street Corridor.

Portal 41 Influent Pump Station Option

The impacts associated with the Route 9–228th Street Corridor IPS Option are the same as those described for the Route 9–195th Street Corridor IPS Option above.

Operation Impacts: Route 9–228th Street Corridor

Operational impacts along the Route 9–228th Street Corridor would be similar to those discussed under Impacts and Mitigation Common: Route 9–195th Street Corridor.

No permanent impacts to Candidate Site 30A in Portal Siting Area 30, currently occupied by an athletic field associated with Brier Elementary School, are anticipated. King County would require only a small portion of the field for permanent use, if selected as a portal site, for a manhole.

Proposed Mitigation: Route 9–228th Street Corridor

Mitigation measures would be the same as discussed under the Route 9–195th Street Corridor discussion. Brier Elementary School would be notified of construction if secondary Portal 30 is required.

17.3.2.4 Outfall: Route 9

Construction Impacts: Route 9 Outfall

Except where noted, public service impacts associated with the construction of the outfall would be the same as those discussed under Impacts and Mitigation Common to All Systems: Outfall, above.

Given the limited vehicle access to this outfall zone, access routes for emergency vehicles could be affected by construction traffic in the Richmond Beach Area. (See Chapter 16 for a discussion of construction traffic impacts.) However, most of the materials and construction for the outfall zone will be transported to and staged from an offshore barge. Land-based construction is limited to approximately 1,000 feet.

Operation Impacts: Route 9 Outfall

Operation of the Brightwater outfall in Zone 7S is not anticipated to impact public services or utilities. Routine maintenance activities would not affect public utility access or use.

Proposed Mitigation: Route 9 Outfall

Mitigation for Outfall Zone 7S would be the same as discussed under Impacts and Mitigation Common to All Systems, Outfall.

17.3.3 Impacts and Mitigation: Unocal System

17.3.3.1 Treatment Plant: Unocal

Construction Impacts: Unocal Treatment Plant

As stated under Impacts and Mitigation Common to All Systems, minor delays to law enforcement and emergency service response times could occur periodically due to increased traffic in association with construction activities. Pine Street, an emergency response route accessing the southern area of the Unocal site, would be required to be relocated. See Chapter 16 for a summary of roadways that would be used during construction.

Schools in the immediate vicinity of the Unocal site may experience increased levels of dust and noise as a result of construction activities. Refer to Chapters 5 and 10 for a discussion of dust and noise impacts associated with construction activities.

Demolition at the Unocal treatment plant site is expected to result in the removal of over 80,000 tons of debris (57,200 cubic yards) during a two-month period. These items include the removal of structures totaling approximately 13,000 square feet, 1,131,000 square feet of paving, and 450,000 square feet of trees and shrubs. King County would coordinate with local solid waste purveyors to ensure facilities would have the landfill capacity to dispose of debris from the site.

Some utilities located on the site, such as the Washington State Department of Transportation stormwater outfall that traverses the site, would have to be relocated.

The Unocal site would be served from the BPA SnoKing substation via two independent 115kV electrical feeders for dual-feed supply. Approximately 4 miles of new electrical line would be required, 2 miles from the Westgate substation (along Edmonds Way) and 2 miles from the Five Corners substation (along Walnut Street) to the Unocal site. The transmission lines to the Unocal site would be installed underground due to space limitations at the site and requirements imposed by the Cities of Edmonds and Woodway. Placing the transmission lines underground would cause temporary traffic disruption, noise, and dust during construction. Impacts associated with providing electrical service to Unocal would be greater than those described for the Route 9 sites because of the need to bury the lines. A typical underground 115kV transmission line trench is expected to be approximately 5-1/2 feet deep and 3 feet wide. Separate trenches would be required for each line. Utilities would likely require relocation along the transmission route. Construction of the underground system would be in approximately 200 foot segments, thereby limiting disruption to these segments as the construction moves forward.

As the form and location of specific energy facilities are determined in the design process, appropriate additional environmental review, as needed, will be conducted. King County would coordinate closely with Snohomish County Public Utility District regarding service provision and impacts associated with construction. See Chapter 8 for a complete description of electrical service requirements at the Unocal site.

Natural gas service to the site would be provided from the nearest high pressure 6-inch gas line located approximately 3 to 4 miles from the site. Open-cut trenching would be required to lay the line, with construction impacts similar to those of the electrical lines. No other utility relocations or disruptions are anticipated.

Construction impacts associated with the 72-mgd sub-alternative is not expected to significantly impact public services or utilities. The increase in construction worker trips could affect emergency vehicle response times during peak hours when workers are being transported from offsite parking areas to the Unocal site.

Under the Unocal 72-mgd sub-alternative, wastewater would also be collected from Edmonds and Lynnwood. This would increase the size of the treatment plant and would

require additional conveyance piping to be constructed between the City of Edmonds and City of Lynnwood's treatment plants and the Brightwater Treatment Plant.

Environmental evaluation of this construction would be conducted by the participating jurisdictions, if and when this sub-alternative is selected for implementation.

Construction impacts associated with the Structural Lid Sub-alternative that would support the Edmonds Multi-modal terminal would be similar to the Unocal 72 mgd Sub-alternative.

Operation Impacts: Unocal Treatment Plant

Except where noted, operational impacts to public services and utilities associated with siting the Brightwater Treatment Plant at the Unocal Site would be similar to those discussed under Impacts and Mitigation Common to All Systems.

Two elementary schools lie within 1 mile of the proposed Unocal site: Sherwood and Westgate (Figure 17-2). As discussed under Impacts and Mitigation Common to All Systems, no significant adverse impacts associated with dust or noise are expected to affect nearby schools. During construction, temporary dust or noise could occasionally be detected from the Sherwood or Westgate Elementary Schools but it would be minor. See Chapters 5 and 10 for a discussion of dust and noise impacts associated with construction activities.

King County would work with Snohomish County Public Utility District to select a route that minimized disruption of existing roadways and other facilities. Utilities in the area, such as power and natural gas, would need to be upgraded to meet the demand of the treatment plant. (See the Energy Chapter for a discussion of impacts.)

If the 72-mgd subalternative is implemented, operations would be significantly altered for the City of Edmonds' and City of Lynnwood's wastewater treatment systems. Staffing at these existing plants would likely be affected. King County would work closely with these jurisdictions prior to implementing this sub-alternative regarding all aspects of operation.

The number of employees at the Brightwater Treatment Plant would range from 50 (36 mgd) to 100 (72 mgd). Two work shifts are projected, with the maximum number of employees during the day shift at 39 to 65 people, including process, administration, maintenance, and coordinator. Under the 72-mgd alternative, the change in the number of employees associated accessing the site is not expected to significant impact emergency services or response times.

Under the Structural Lid Sub-alternative, operation of the treatment plant in combination with the Edmonds Multi-modal Terminal would not significantly impact public services or utilities. Except where noted, impacts would be similar to those described under Impacts and Mitigation Common to All Systems. The traffic volumes and roadway

operations would not significantly change; therefore, no impacts to emergency service response times are anticipated.

Proposed Mitigation: Unocal Treatment Plant

Except where noted, mitigation measures at the Unocal treatment plant site would be similar to those listed in the Impacts and Mitigation Common to All Systems discussion.

To minimize impacts to school properties within the vicinity of the Unocal site, BMPs would be used to limit dust and noise impacts that may be detected from nearby schools during construction. See Chapters 5 and 10 for a discussion of dust and noise mitigation measures.

17.3.3.2 Conveyance: Unocal

Construction Impacts: Unocal Conveyance

Except where noted, construction impacts to public services and utilities along the Unocal Corridor would be similar to construction impacts listed under Impacts and Mitigation Common to All Systems.

Public Services

Traffic associated with construction activities at the portals and pump station locations could temporarily delay emergency services vehicles and traffic. If Secondary Portal 10 is needed, construction access would likely increase congestion in the vicinity of the Lake Forest Park Police Station, as well as the Northshore Fire District/King County Fire District No. 16 station located in Lake Forest Park. SR-522 and SR-104 are major arterials providing access for emergency vehicles in the area. Both roadways currently experience congestion during rush hour traffic. Additional congestion along these roadways could increase emergency vehicle response times. Candidate sites for Primary Portal Siting Area 11, which will require a pump station for the Unocal corridor, are close to SR-522. Construction at this portal siting area could potentially increase congestion on this arterial and increase emergency response times. Construction within Primary Portal Siting Area 3 could affect SR-104, which provides emergency access routes for Edmonds and Snohomish County emergency vehicles. Portal siting in this corridor would include coordination with emergency service providers to minimize this potential. Refer to Chapter 16 for a discussion of traffic impacts and proposed mitigation measures along these roadways.

Open cut and/or microtunnel construction would be used to install short lengths of pipe at primary Portal Siting Areas 11 and 14. Portal design would attempt to minimize utility disruption, but some short-term disruption could occur.

Locating a portal at Candidate Portal Site 7A has the potential to disrupt school activities along the Unocal corridor. If Site 7A is selected, a portion of the Aldercrest Learning Center property would be temporarily closed, and access would be restricted near the construction site.

If Secondary Portal 13 (Figure 17-2) is needed, construction activities could disrupt traffic to and from W.A. Anderson Alternative High School located in the City of Bothell. This school is the only active school located within a portal siting area along the Unocal corridor. This portal would not likely be required, but if this secondary portal is needed, King County would coordinate closely with the school district to minimize impacts to students and teachers.

Utilities

Utility impacts would be similar to those discussed under the Impacts Common to All Systems section.

Along the Unocal corridor, preliminary evaluation indicates dewatering rates from portals may require discharging removed groundwater into the local sanitary sewer systems. Refer to Appendix 6-B, Geology and Groundwater, and Appendix 6-F, Groundwater and Stormwater Management at the Candidate Portal Sites for a description of required dewatering locations and dewatered volumes along the Unocal corridor.

Operation Impacts: Unocal Conveyance

Operation of the Unocal System is not expected to impact emergency service provision, response times, or public utilities. No impacts to public services are anticipated as a result of a new pump station located in Portal Siting Area 11. Occasional maintenance of the facility would require vehicular access to the area; however, this would result in insignificant traffic volumes. Chapter 16 discusses expected vehicular trips during operation of the Unocal System.

Proposed Mitigation: Unocal Conveyance

In addition to measures listed under Impacts and Mitigation Common to All Systems: Conveyance, the following mitigation measures would be implemented to minimize impacts to public services for the Unocal corridor:

- If secondary Portal 13 is used, coordinate closely with the Northshore School District and W.A. Anderson Alternative High School staff.
- If Candidate Site 7A is selected as a portal site, ensure that the construction site is well marked and fenced off during times of inactivity.

- To reduce the possibility of power failure at the Portal 11 pump station, equip the facility with a dual, independent power supply or emergency diesel generators. Power lines would be buried in accordance with the local and business park design standards.

17.3.3.3 Outfall: Unocal

Construction Impacts: Unocal Outfall

Except where noted, public service impacts associated with the construction of the outfall would be the same as those discussed under Impacts and Mitigation Common to All Systems: Conveyance, above. Offshore construction would be conducted by barge, which would not affect public services and utilities.

On-land trench construction would extend up to 1,000 feet from the effluent pump station to the shoreline for the Unocal System. Construction impacts for outfall Zone 6 would be similar to the impacts described for the Route 9 outfall.

Operation Impacts: Unocal Outfall

There would be no impacts to public services and utilities associated with outfall operation.

Proposed Mitigation: Unocal Outfall

Mitigation for Outfall Zone 6 would be the same as discussed under Impacts and Mitigation Common to All Systems, Outfall.

17.3.4 Impacts: No Action Alternative

No construction or operational impacts to public services or utilities would occur with the selection of the No Action Alternative.

As available capacity in King County's wastewater interceptor decreases, local sewer districts will experience more and more backups and overflows upstream of connections to the King County system. Wastewater utilities in Snohomish County would be faced with increasing capacity limitations as growth continues, resulting in potential inconsistencies with adopted comprehensive plan policies and service agreements (see Chapter 11). Increased reliance upon onsite wastewater disposal would likely occur in some areas.

17.3.5 Cumulative Impacts

The construction of a major infrastructure project lasting up to 6 years will result in construction-related delays and inconveniences. These delays, coupled with overall increasing traffic congestion in the region, could contribute to increasing emergency response times throughout the region. However, as discussed in Chapter 16, traffic impacts to local roadways from the Brightwater project are expected to be mitigated to levels that will not cause significant traffic impacts during construction or operation of the Brightwater System.

In addition, dewatering at the selected treatment plant site, at the portal siting areas, and the on land portion of the outfall construction area would temporarily add flows to existing King County and local sanitary sewer and stormwater utilities for affected jurisdictions. See Chapter 6 and Appendix 6-A for more detailed discussions of dewatering during construction.

Construction of new utility lines would add to overall construction-related disruption in the region.

Finally, construction and operation would require additional energy. See Chapter 8 for a discussion of energy impacts.

17.4 Significant Unavoidable Adverse Impacts

Significant unavoidable adverse impacts to public services or utilities are not anticipated because of construction or operation of the treatment plants, conveyance system, or outfall zones. Temporary impacts (e.g., slower response times for emergency services) related to traffic associated with construction and facility operation would not pose a significant adverse impact since detours would not be required during construction. Students and faculty of nearby schools may detect dust and noise resulting from construction activities.

17.5 Summary of Impacts and Mitigation

Table 17-6 presents a summary of impacts and mitigation for public services and utilities for the Brightwater System alternatives.

Table 17-6. Summary of Potential Public Services and Utilities Impacts and Proposed Mitigation for Brightwater Systems

Brightwater System	System Component	Impacts	Mitigation
Common to All Systems	Treatment Plant	<u>Construction</u> <ul style="list-style-type: none"> No significant impact to public services is expected from construction activities; however, traffic delays that could affect public and emergency vehicles may occur on occasion. Increased noise and dust may be detected by the public service sector during plant construction, expected to last up to 6 years. Construction activities may require the relocation of an existing utility structure; some utility work could result in a temporary service disruption. Construction of new energy utility lines may increase construction-related impacts to existing roadways and neighborhoods. Construction of local utility connections could result in street disruptions, temporary utility construction, minor vegetation losses, noise, dust, etc., and disruption to surrounding land use. 	<u>Construction</u> <ul style="list-style-type: none"> Public notification of proposed construction activities would be provided to all local service providers. Construction traffic routing would be planned to minimize traffic impacts during construction and minimize potential impacts to emergency vehicle response times. A Construction Traffic Plan would be developed during the project design stage to ensure emergency access routes are identified. An Emergency Response Plan and Spill Prevention, Containment, and Control Plan will be prepared prior to construction. Safety personnel provided by the contractors will be present at the construction site in accordance with OSHA and WISHA. King County would coordinate with local solid waste purveyors to ensure debris created during the demolition phase would not exceed the capacity of local facilities. King County would coordinate with the local and regional utility purveyors to locate utilities and identify measures to minimize impacts to customers. A Water Supply Contingency Plan will be prepared prior to construction to ensure appropriate measures are in place in case of a water system disruption. During the project design phase, King County will conduct geotechnical studies to determine the location of drawdown for wells and identify any unrecorded wells that could be impacted by project construction

Table 17-6. Summary of Proposed Brightwater System Impacts and Mitigation related to Public Services and Utilities (cont.)

Brightwater System	System Component	Impacts	Mitigation
Common to All Systems (cont.)	Treatment Plant (cont.)		<ul style="list-style-type: none">• King County will coordinate with energy providers and neighborhoods to minimize impacts.• For short-term water disruption, bottled water would be provided to those experiencing impacts to water service; during periods of long-term water disruption, temporary hookups and service would be provided.• If private wells are impacted during construction, King County would ensure new connections are made to nearby frontage services or new wells are installed.• In the event dewatering volumes need to be discharged to local sewer systems, King County would coordinate with the affected service providers to determine needs/requirements for connecting to the system.
		<u>Operation</u> <ul style="list-style-type: none">• No significant impacts to emergency response public services are expected from long-term operation of the Brightwater Treatment Plant (see Chapter 9 for a description of potential response procedures to emergencies at the treatment plant).• The Brightwater Treatment Plant would result in an increased demand for power and natural gas service.• The water demand for operation of the Brightwater Treatment Plant will be approximately 350 gpm for continuous use; the average fire flow for a one-hour period would be approximately 2,000 to 2,500 gpm of water.• Utilities would have to be upgraded to meet the demand of the treatment plant.	<u>Operation</u> <ul style="list-style-type: none">• King County will implement the use of reclaimed water at the treatment plant site for processes that do not require potable water to significantly reduce potable water demand from the local water purveyor.

Table 17-6. Summary of Proposed Brightwater System Impacts and Mitigation related to Public Services and Utilities (cont.)

Brightwater System	System Component	Impacts	Mitigation
Common to All Systems (cont.)	Conveyance	<u>Construction</u> <ul style="list-style-type: none"> Except where noted, same as Common to All Systems for the Treatment Plant. Potential need to discharge construction dewatering from portal sites to local sewer systems. Construction of local utility connections could result in street disruptions, temporary utility construction, minor vegetation losses, noise, dust, etc., and disruption to surrounding land use. 	<u>Construction</u> <ul style="list-style-type: none"> Except where noted, same as Common to All Systems for the Treatment Plant. King County will coordinate with local fire and emergency service providers to ensure they have the specialized training and equipment to respond to emergencies related to the Brightwater System, including confined space rescue. King County would coordinate with local utility providers prior to construction at all portal siting areas. Portal sites would be located to avoid significant major regional utilities. Utility location would be requested from local utility providers; if a utility is required to be relocated, the utility providers would be consulted. Critical utilities would be monitored during tunneling to determine if utility settlement is occurring.
		<u>Operation</u> <ul style="list-style-type: none"> Portal operations are not expected to impact public services or utilities during operation. 	<u>Operation</u> <ul style="list-style-type: none"> No mitigation measures required.
	Outfall	<u>Construction</u> <ul style="list-style-type: none"> With no significant electric, sewer, natural gas, or other public utility lines near the proposed outfalls, no significant impacts are expected to occur to utilities. 	<u>Construction</u> <ul style="list-style-type: none"> Utility lines would be located using a utility locator service during final design and final excavation. Confirm the final outfall alignment and request the location of any in-water utility cables. Short, bridged section to the offshore pipeline may span identified in-water utility cables to prevent damage to cables during outfall construction and operation.
		<u>Operation</u> <ul style="list-style-type: none"> Operation of the outfall is not expected to directly impact public services or utilities. 	<u>Operation</u> <ul style="list-style-type: none"> No mitigation measures required.

Table 17-6. Summary of Proposed Brightwater System Impacts and Mitigation related to Public Services and Utilities (cont.)

Brightwater System	System Component	Impacts	Mitigation
Route 9–195th Street System	Treatment Plant	<u>Construction</u> <ul style="list-style-type: none"> Except where noted, same as Common to All Systems. Cross Valley Water District pipelines occupying the Route 9 site would be decommissioned or relocated, in accordance with the District's requirements. Approximately 1 mile of new 115 kV overhead electrical transmission line from Turners Corner substation (at intersection of SR-9 and 228th) to plant site, resulting in potential street disruption and temporary utility construction. 	<u>Construction</u> <ul style="list-style-type: none"> Same as Common to All Systems.
		<u>Operation</u> <ul style="list-style-type: none"> Same as Common to All Systems. 	<u>Operation</u> <ul style="list-style-type: none"> Same as Common to All Systems.
	Conveyance	<u>Construction</u> <ul style="list-style-type: none"> Except where noted, same as Common to All Systems. Though not likely to be selected, if Candidate Site 7-A is selected as a secondary portal location, one-half acre of the playfield at Aldercrest Learning Center could be temporarily closed during construction and students could experience increased dust, noise, and traffic during construction. Open cut/microtunnel construction at Portal Siting Areas 11, 44 and 41 could temporarily disrupt utilities. 	<u>Construction</u> <ul style="list-style-type: none"> Same as Common to All Systems, plus the following measures. King County would coordinate with Aldercrest Learning Center to ensure portal construction and operation if candidate site 7A were selected. King County would comply with safety requirements for work around power lines. King County would coordinate with local utilities to avoid service disruption.

Table 17-6. Summary of Proposed Brightwater System Impacts and Mitigation related to Public Services and Utilities (cont.)

Brightwater System	System Component	Impacts	Mitigation
Route 9–195th Street System (cont.)	Conveyance (cont.)	<u>Operation</u> <ul style="list-style-type: none"> Except where noted, same as Common to All Systems. Not likely to be selected; however, the playfield at Aldercrest Learning Center in secondary PSA 7 could be the location of a manhole if selected as a portal site. 	<u>Operation</u> <ul style="list-style-type: none"> No mitigation measures required.
		<u>Construction</u> <ul style="list-style-type: none"> Same as Common to All Systems. 	<u>Construction</u> <ul style="list-style-type: none"> Same as Common to All Systems.
	Outfall Zone 7S	<u>Operation</u> <ul style="list-style-type: none"> Same as Common to All Systems. 	<u>Operation</u> <ul style="list-style-type: none"> Same as Common to All Systems.
Route 9–228th Street System	Treatment Plant	<u>Construction</u> <ul style="list-style-type: none"> Same as Common to All Systems. 	<u>Construction</u> <ul style="list-style-type: none"> Same as Common to All Systems.
		<u>Operation</u> <ul style="list-style-type: none"> Same as Common to All Systems. 	<u>Operation</u> <ul style="list-style-type: none"> Same as Common to All Systems.

Table 17-6. Summary of Proposed Brightwater System Impacts and Mitigation related to Public Services and Utilities (cont.)

Brightwater System	System Component	Impacts	Mitigation
Route 9–228th Street System (cont.)	Conveyance	<u>Construction</u> <ul style="list-style-type: none"> Except where noted, same as Common to All Systems. Up to six portals along 228th Street (3 primary and 3 secondary) could create an increase in traffic and result in a minimal impact to emergency vehicle response times. Potential need to discharge construction dewatering to local sewer systems. Though not likely to be selected as a portal site, about one-half acre of the playfield at Brier Elementary School within secondary Portal Siting Area 30 could be temporarily closed during construction; students at Brier Elementary School could experience temporary construction impacts associated with dust, noise, and traffic. Open cut/microtunnel construction at Portal Siting Areas 11, 44 and 41 could temporarily disrupt utilities. 	<u>Construction</u> <ul style="list-style-type: none"> In addition to construction mitigation measures discussed under Common to All Systems, Brier Elementary School would be notified of construction activities if secondary Portal 30 is required for the project. King County would coordinate with local utilities to avoid service disruption.
		<u>Operation</u> <ul style="list-style-type: none"> Except where noted, same as Common to All Systems. The playfield at Brier Elementary School, located in secondary Portal 30, could be the location of a manhole if it were required as a secondary portal site. 	<u>Operation</u> <ul style="list-style-type: none"> Same as Common to All Systems.
	Outfall Zone 7S	<u>Construction</u> <ul style="list-style-type: none"> Same as Common to All Systems. 	<u>Construction</u> <ul style="list-style-type: none"> Same as Common to All Systems.

Table 17-6. Summary of Proposed Brightwater System Impacts and Mitigation related to Public Services and Utilities (cont.)

Brightwater System	System Component	Impacts	Mitigation
Route 9–228th Street System (cont.)	Outfall Zone 7S (cont.)	<u>Operation</u> <ul style="list-style-type: none"> Same as Common to All Systems. 	<u>Operation</u> <ul style="list-style-type: none"> Same as Common to All Systems.
Unocal System	Treatment Plant	<u>Construction</u> <ul style="list-style-type: none"> Except where noted, same as Common to All Systems. Under the 72-mgd sub-alternative, additional conveyance piping would be required between the Edmonds and Lynnwood treatment plants and the Brightwater Treatment Plant. Pine Street, an emergency service response route would be relocated and could impact response times for emergency vehicles to the site. Approximately 4 miles of new underground electrical line needed from Westgate and Maplewood substations to plant site, resulting in temporary traffic disruption, noise and dust. 	<u>Construction</u> <ul style="list-style-type: none"> Same as Common to All Systems. Emergency service providers in Edmonds and Woodway would be notified prior to modification of local roadways. Pine Street would be relocated prior to closure of existing alignment to preserve vehicle passage at all times.
		<u>Operation</u> <ul style="list-style-type: none"> Same as Common to All Systems. 	<u>Operation</u> <ul style="list-style-type: none"> Same as Common to All Systems.

Table 17-6. Summary of Proposed Brightwater System Impacts and Mitigation related to Public Services and Utilities (cont.)

Brightwater System	System Component	Impacts	Mitigation
Unocal System (cont.)	Conveyance	<u>Construction</u> <ul style="list-style-type: none"> Except where noted, same as Common to All Systems. The playfield at Aldercrest Learning Center within primary Portal Siting Area 7 could be temporarily closed during construction if the site is selected as a portal location; students at Aldercrest Learning Center could experience temporary construction impacts associated with dust, noise, and traffic. If secondary Portal 10 is needed, construction access could increase congestion in the vicinity of the Lake Forest Park Police Station and Northshore Fire District 16 Fire Station in Lake Forest Park. Open cut/microtunnel construction at Portal Siting Areas 11 and 14 could temporarily disrupt utilities. 	<u>Construction</u> <ul style="list-style-type: none"> Except where noted, same as Common to All Systems. If Aldercrest Learning Center were selected as a portal site, ensure the construction site is well marked and fenced off during times of inactivity. If secondary Portal 13 is required, W.A. Anderson Alternative High School and Northshore School District would receive appropriate notice prior to construction. The Portal 11 pump station would be equipped with a backup power supply; power lines would be buried in accordance with local standards.
		<u>Operation</u> <ul style="list-style-type: none"> Same as Common to All Systems. 	<u>Operation</u> <ul style="list-style-type: none"> Same as Common to All Systems.
		<u>Construction</u> <ul style="list-style-type: none"> Same as Common to All Systems. 	<u>Construction</u> <ul style="list-style-type: none"> Same as Common to All Systems.
	Outfall Zone 6	<u>Operation</u> <ul style="list-style-type: none"> Same as Common to All Systems. 	<u>Operation</u> <ul style="list-style-type: none"> Same as Common to All Systems.

Table 17-6. Summary of Proposed Brightwater System Impacts and Mitigation related to Public Services and Utilities (cont.)

Brightwater System	System Component	Impacts	Mitigation
No Action Alternative		<u>Construction</u> <ul style="list-style-type: none"> No construction impacts associated with the treatment plant, conveyance or outfall would occur with the selection of the No Action Alternative. 	<u>Construction</u> <ul style="list-style-type: none"> No mitigation is proposed.
		<u>Operation</u> <ul style="list-style-type: none"> As available capacity in King County's wastewater interceptor decreases, local sewer districts will experience more and more backups and overflows upstream of connections to the King County system. 	<u>Operation</u> <ul style="list-style-type: none"> No mitigation is proposed.

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